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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/409,986	09/30/1999	GHASSAN NAIM	71493-576	6209

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EXAMINER
CRAVER, CHARLES R

ART UNIT	PAPER NUMBER
2685	

DATE MAILED: 07/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/409,986	Naim et al
Examiner	**Art Unit**
Charles Craver	2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) *24* is/are allowed.

6) ☒ Claim(s) *1-7, 11, 12, 15, and 18-23* is/are rejected.

7) ☒ Claim(s) *8-10, 13, 14, 16, and 17* is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 6, 7, 15 and 20-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6 and 7 recite the phrase "how long until each particular wireless station was last allocated..." in lines 2-3 of the claims. This phrasing is unclear.

Claim 15 states a formula in which a number is set to either of two numbers is a value dFr is greater than a value a. This is unclear.

Claims 20-23 recite a means "operable to" perform a function. This language is indefinite as it does not define the precise function of the means.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-3, 5, 12, 18 and 20-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Tiedemann.

Claim 1: Tiedemann discloses a method for selecting one of a number of wireless stations (FIG 1) to be allocated a transmit opportunity, comprising

selecting a group of stations to compete for a communication opportunity (col 4 line 60-col 5 line 15 and col 8 lines 43-65),

for each station, maintaining a respective transaction length and delay for each station and computing a priority based on the length and delay (col 5 lines 16-25), and

selecting a station with the highest priority to be allocated said opportunity (col 5 lines 25-26).

Claims 2 and 3: Tiedemann discloses that the method is applicable over both forward () and reverse links (col 4 lines 60-66, col 14 lines 53-56).

Claim 5: Tiedemann discloses station type priority as a factor (col 32 line 66-col 33 line 17).

Claim 12: Tiedemann discloses using a queue for data destined for the mobile station (col 21 lines 49-67).

Claim 18: the invention of Tiedemann would inherently operate over both directions in a simultaneous fashion if two stations were communicating with each other. **Claim 19:** the reservation of transmission bandwidth for a station which is receiving forward link traffic would

inherently occur if said station is at the top of the priority list for reverse link bandwidth allocation.

Claim 20: Tiedemann discloses a scheduler (col 7 lines 28-39).

Claim 21: Tiedemann discloses that the scheduling may be a part of a BS (col 8 lines 15-31).

Claim 22: Tiedemann discloses that the scheduler may be a part of a BSC (col 6 lines 16-28, FIG 2).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tiedemann.

Claim 11: While disclosing applicant's invention of claim 1 above, Tiedemann does not disclose a random selection if multiple stations have the same priority. However, given that a selection would need to be made, a random selection would have been a routine engineering

decision, and as such one of ordinary skill in the art would have found such an option obvious in view of the prior art. Such a selection would be the most fair approach.

Claim 23: while disclosing applicant's invention of claim 1, Tiedemann does not disclose a MAC layer device. However, given that MAC layer devices were notoriously well known in the art at the time of the invention, the examiner takes Official Notice of such a feature, and asserts that one of ordinary skill in the art at the time of the invention would have considered a MAC layer device for the operation of the scheduling, as it would follow a well known protocol and provide ease of installation in a cellular system.

Allowable Subject Matter

7. Claim 24 is allowed.

8. Claims 6-10 and 13-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and, in the case of claims 6 and 7, to overcome rejections under 35 USC 112..

9. The following is a statement of reasons for the indication of allowable subject matter: .

Claims 6 and 7 teach towards a method for prioritizing access to a system by competing radio stations, said priority being based on the length of expected communications and the amount of time since the stations's last transmit opportunity, wherein further the priority is based on how long until a timeout will occur for that station. Claim 8 teaches that the priority is an increasing

function of delay and a decreasing function of transaction length. Claim 9 teaches that the priority is also an increasing function of wireless station priority. Claim 10 further teaches that the priority is also a decreasing function of said timeout.

Claim 13 teaches towards a method for prioritizing access to a system by competing radio stations, said priority being based on the length of expected communications and the amount of time since the stations's last transmit opportunity, wherein further selection of the group of stations to compete includes, on the basis of the stations's rate, determining the next opportunity that the station should compete for, and selecting the group from among those that should compete.

Claim 14 teaches towards a method for prioritizing access to a system by competing radio stations, said priority being based on the length of expected communications and the amount of time since the stations's last transmit opportunity, wherein further transmit units for the station are queued in a high or low priority queue, and the group of stations to compete are selected among those whose units are in the high priority queue, and if there are none, selecting among the low priority queue.

Claim 15 teaches towards a method for prioritizing access to a system by competing radio stations, said priority being based on the length of expected communications and the amount of time since the stations's last transmit opportunity, wherein further the priority is calculated according to a specific formula P=-1 (dFr⟨a), highest (dFr=a), (dFr/trSize)(1+[(1/a-dFr)-(1/a)]∝)+MSPriority (dFr⟩a).

Claim 16 teaches towards a method for prioritizing access to a system by competing radio stations, said priority being based on the length of expected communications and the amount of time since the stations's last transmit opportunity, wherein further the access to the system is via time slots, and a timeout value is set for each station, and if a timeout value is reserved, resetting the timeout to occur at a slot available for allocation before the reserved slot. Claim 17 teaches periodically reserving transmit opportunities for contention access by noncompeting stations those reserved opportunities being unavailable for allocation to competing stations.

Claim 24 teaches towards a method for prioritizing access to a system by competing radio stations, said priority being based on the length of expected communications and the amount of time since the stations's last transmit opportunity, wherein further the system causes the station to compete with one another for a communication opportunity, and wherein the stations are wireless base stations.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Montpetit discusses bandwidth allocation in a packet system.

Baiyor et al discusses prioritized service to mobile stations.

Kim et al discusses channel access in a TDMA system.

Wang et al discusses priority values in a channel allocating system.

Dorenbosch et al discusses means for allocating channels using priority.

Linneweh et al discusses priority in a cellular system.

Ishikawa et al discusses a dynamic channel allocation method.

11. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for formal communications intended for entry)

Or:

(703) 872-9314 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, sixth floor (receptionist).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Craver whose telephone number is (703) 305-3965.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Urban, can be reached on (703) 305-4385.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700.

cc

C. Craver
June 30, 2002

EDWARD F. URBAN
SUPERVISORY PATENT EXAMINER
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